

CLAIMS

What is claimed is:

1. A filter for use in engines or transmissions, comprising:
an inlet-side cover having a wave-like region along the periphery of said inlet-side cover;
an outlet-side cover having a wave-like region along the periphery of said outlet-side cover, wherein said outlet-side cover wave-like region is in a generally complementary alignment with said inlet-side cover wave-like region; and
a filter media fixed in a non-planar configuration between said wave-like regions of said inlet-side and outlet-side covers.
2. The filter of claim 1, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover.
3. The filter of claim 1, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover and wherein said inlet-side cover further comprises at least one inlet-side filter media support disposed within said inlet-side cover.
4. The filter of claim 1, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover and wherein said inlet-side cover further comprises at least one inlet-side filter media support disposed within said inlet-side cover, wherein said at least one inlet-side filter media support corresponds to said at least one outlet-side filter media support.
5. The filter of claim 1, wherein said inlet-side cover further comprises media retention means disposed along the periphery of said inlet-side cover.

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6. The filter of claim 1, wherein said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.

7. The filter of claim 1, wherein said inlet-side cover further comprises media retention means disposed along the periphery of said inlet-side cover and said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.

8. The filter of claim 1, wherein said inlet-side cover further comprises a crimp rib disposed along said wave-like region of said inlet-side cover and said outlet-side cover further comprises a crimp recess disposed along said wave-like region of said outlet-side cover.

9. The filter of claim 1, wherein said inlet-side cover further comprises a crimp rib disposed along the periphery of said inlet-side cover and said outlet-side cover further comprises a crimp recess disposed along the periphery of said outlet-side cover.

10. The filter of claim 1, wherein said inlet-side and outlet-side covers are joined by a single joining operation.

11. The filter of claim 1, wherein said inlet-side cover is thermoplastic.

12. The filter of claim 1, wherein said outlet-side cover is thermoplastic.

13. The filter of claim 1, wherein said inlet-side cover and said outlet-side covers are thermoplastic.

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14. The filter of claim 1, wherein said inlet-side cover and said outlet-side covers are thermoplastic and joined by a single plastic-to-plastic bonding operation.

15. A filter for use in engines or transmissions, comprising:
an inlet-side cover having alternating convex and concave regions along the periphery of said inlet-side cover;

an outlet-side cover having alternating convex and concave regions along the periphery of said outlet-side cover which are in complementary alignment with said convex and concave regions of said inlet-side cover; and

a filter media fixed in a wave-like configuration between said alternating convex and concave regions of said inlet-side cover and said outlet-side cover.

16. The filter of claim 15, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover.

17. The filter of claim 15, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover, wherein said at least one outlet-side filter media support includes an alternating convex and concave region.

18. The filter of claim 15, wherein said outlet-side cover further comprises at least one outlet-side filter media support disposed within said outlet-side cover, wherein said at least one outlet-side filter media support includes an alternating convex and concave region in alignment with said alternating convex and concave region along the periphery of said outlet-side cover.

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19. The filter of claim 18, wherein said inlet-side cover further comprises at least one inlet-side filter media support disposed within said inlet-side cover, wherein said at least one inlet-side filter media support lines up with said at least one outlet-side filter media support.

20. A filter for use in engines or transmissions, comprising:
an inlet-side cover having a wave-like region along the periphery of said inlet-side cover and one or more inlet-side media supports disposed within said inlet-side cover;
an outlet-side cover having a wave-like region along the periphery of said outlet-side cover and outlet-side media supports disposed within said outlet-side cover, wherein said outlet-side cover wave-like region is complementary in shape and alignment with said inlet-side cover wave-like region; and
a filter media fixed in a wave-like configuration between said wave-like regions of said inlet-side cover and said outlet-side cover.

21. The filter of claim 20, wherein said inlet-side media supports line up with said outlet-side media supports.

22. The filter of claim 20, wherein said inlet-side media supports and said outlet-side media supports are sized so that a gap is created between said inlet-side and said outlet-side media supports when the filter is assembled.